

PHOSPHORS CONTAINING PHOSPHATE AND/OR BORATE OF METALS OF  
GROUP IIIA, GROUP IVA, AND LANTHANIDE SERIES, AND LIGHT  
SOURCES INCORPORATING THE SAME

ABSTRACT OF THE DISCLOSURE

[0078] A phosphor comprises an oxide that comprises: (a) at least an element selected from the group consisting of phosphorus and boron; (b) at least a metal selected from the group consisting of elements of Group IIIA, elements of Group IVA, and elements of the lanthanide series; which oxide is co-activated with  $\text{Ce}^{3+}$  and  $\text{Tb}^{3+}$ . In one embodiment, a phosphor comprises lanthanum and gadolinium phosphate and/or borate co-activated with cerium and terbium. A phosphor of the present invention has low emission of UV radiation having wavelengths longer than about 250 nm, thus efficiently uses exciting UV having shorter wavelengths. The phosphor is used in light source that comprises a UV radiation source to convert efficiently UV radiation to visible light.